Effectiveness of a web-based, digital health platform combining social care and respiratory coach support to improve adherence to treatment and symptom control in children and adolescents with difficult-to-control asthma

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BACKGROUND

Asthma is the most common respiratory disease in children and prevalence continues to increase globally. According to the data published by the International Study of Asthma and Allergies in Childhood, prevalence of wheezing in Spanish children ranged from 7.1% to 12.9% and 5.1 to 15.3% for children aged 6-7 and 13-14 respectively. Despite the efforts and improvements in therapeutic management of asthma, trends in asthma control for the past decades show a lack of improvement in asthma control and disease management in children, especially among those living in poor-urban areas.

OBJECTIVE

The main objective of this study is to evaluate the feasibility and preliminary effectiveness of a web-based online/offline interactive platform (HappyAir®) to increase asthma control in children with moderate to severe persistent and difficult-to-control asthma in comparison to the standard care.

HYPOTHESIS

We hypothesized that patients who have access to a web-based online/offline interactive platform (HappyAir®) and are supported by a respiratory coach will improve their symptom control according to the ACQ Test in a significant and clinically meaningful way in comparison to the standard care.

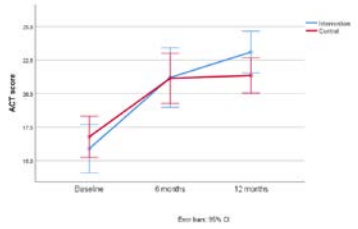
MATERIAL AND METHODS

This is a randomized, multicenter, single-blinded controlled trial conducted at 4 tertiary hospitals. Children between 6 and 18 years old, with non-controlled asthma and with a value of Asthma Control Test (ACT) ACT ≤19.

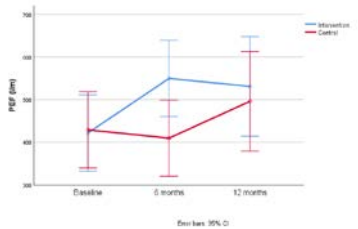
PRELIMINARY RESULTS

VARIABLE	GROUP	BASELINE	6 MONTHS	12 MONTHS
FEV1 (l/s)	INTERVENTION	2,2 (0,8)	2,4 (1)	2,5 (1,1)
	CONTROL	2,2 (0,6)	2,1 (0,7)	2,4 (0,7)
FEV1 (% predidcted)	INTERVENTION	88,2 (20,6)	91,3 (23,8)	92,1 (24,5)
	CONTROL	101,9 (34,6)	85,8 (15,3)	90,2 (13,6)
PEF (l/min)	INTERVENTION	432,7 (128)	563.5 (133,7)	545 (160,9)
	CONTROL	453,1 (114.4)	423,5 (121,6)	524 (162,2)
ACT	INTERVENTION	16 (3,3)	21,7 (2,45)	23.1 (1,7)
	CONTROL	16,9 (2,3)	21,9 (3,3)	21.4 (2,5)
Exacerbations	INTERVENTION	3,5 (1,8)	1,1 (1,3)	0,75 (1,1)
	CONTROL	3,8 (2,8)	1 (1,1)	0,85 (1,1)

Table 2: Main results in both groups across time



ACT: a significant effect of time was found: F(2,38)=30.89, p<.001. No significant effect of the interaction between group and time: F(2,38)=1.367, p=.257



PEF: significant effect of time: F(2,28)=6.99, p=.005 as well as the interaction between time and treatment group: F(2,28)=5.701, p=.01

CONCLUSIONS

Based on the preliminary results obtained, a platform used for monitoring could lead an improvement in PEF and ACT in children and adolescents with difficult asthma control .
In addition, health education through digital platforms is considered a great innovation and motivation for asthma control in school children to improve their learning and control of the disease.